DOCUMENT RESUME

ED 339 108 EA 023 480

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TITLE Economies of Scale and Smallness Policy in School Organization: Comparisons of New York State's Smallest K-12 Districts.
PUB DATE Oct 91
NOTE 30p.; Paper presented at the Annual Meeting of the University Council for Educational Administration (Baltimore, MD, October 1991).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Educational Economics; Educational Policy; Elementary Secondary Education; *Fiscal Capacity; Resource Allocation; Rural Areas; *Rural Schools; School Districts; *School District Size; School District Spending; *School Organization
IDENTIFIERS *New York; *Small School Districts

ABSTRACT

The effects of state educational consolidation policies and decentralizing curriculum reform initiatives on small school districts in New York are examined in this paper, with a focus on identifying patterns of environmental "embeddedness" that may include or exclude small districts from state equalization aid. Methodology involved multiple regression analysis of 205 state-defined small jurisdictions and second-order analysis of 170 nonmetropolitan small central school districts. The relationships of two dependent variables--pupil enrollment in grades K-12 and college-bound academic productivity--with selected district economic indices and secondary curriculum/pupil characteristics, respectively, were explored. Findings indicate little systematic connection of the economic allocation formats of fiscal year 1990 to any previous small school district/nonmetropolitan county discussions, raising the question of whether emerging political meanings of state aid allocation and episodic emergency reductions nullify such systematic thinking. A policy recommendation is made to consider the "nested" meaning of select districts within the nonmetropolitan level that are juxtaposed to both city and small city school districts. Appendices include statistical tables and nonmetropolitan demographics. (15 references) (LMI)

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Economies of Scale and Smallness Policy in School Organization: Comparisons of New York State's Smallest k-12 Districts

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Overview

There were three basic purposes underlying this study;(a) to understand the operational meanings of "small k-12 district" in New York State,(b)to consider the implications of county jurisdiction arrangements that may promote or deny the "necessarily small" value of particular k-12 districts ,(c) to suggest further criteria from "small city" school jurisdictions and the annual educational state aid allocations since 1990 that may improve a "nested planning" approach for the cohort of small central school districts with a maximum enrollment of ≥1100 in grades k-12 (1) .

Specifically, the cohort for analyses was composed of 205 jurisdictions which met the official New York State Education Department definition of "small" as of January 1990. Second order analyses of the "nonmetropolitan" or "upstate" subset of the cohort was delimited to 170 small central school districts.

1990 pupil enrollment in grades k-12 was the dependent variable used to determine systematic relationships to both expenditure- revenue and selected wealth capacity- effort descriptor indices of on-going operations. "College bound" academic productivity, defined as those receiving Regent Diplomas among graduating seniors in 1990, was the second dependent variable to determine an organizational perspective to secondary curriculum and pupil characteristics(2).

Educational policies of consolidation to eliminate "inefficient" small districts and multiyear curricular reform initiatives emphasizing extreme decentralization statewide were considered the primary reasons to search for particular patterns of environmental "embeddedness" that might include or exclude districts with ≥1100 pupils in grades k-12 . Specific policy attention is suggested for "nested" meaning of select districts as they juxtapose to both county and "small city"school districts within the nonmetropolitan"family of governments" in New York State.

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Rationale

This particular cohort analysis was based upon the assertion that the remarkable policy conditions of New York State in the early l990's force a dramatic reconsideration of all public services offered by statelevel, regional and local jurisdictions. Consequently, those responsible for accounting for the educational portion of the public service sector must be at least as concerned with the interrelationships of existing stuctures of organization as with academic productivity in the conventional, output sense.

This dual accounting of jurisdiction and production is especially true for those public school districts officially identified by the New York State Education Department as "small". The smallest of New York public school districts are often overlooked in aggregate statewide analyses or, even worse, treated as little better than a statistical residual of "urban" focus. In reality, the jurisdictions of ≥1100 in grades k-12 could be envisioned as either a cohort study of 28% of all k-12 districts in New York State(205 of 700+) or as a special population analysis of approximately 5% of all children being serviced in k-12 education(140,000 of 2.5+ million). The predominant urban sentiment of New York State further adds to the possibilities of being overlooked, with three fourths(170 or 82%) of the total districts with ≥1100 pupils in grades k-12 located in "nonmetropolitan" areas of the state.

While few people will deny that k-12 education remains "at risk" as a production function, there seems a more immediate concern in reconsidering the jurisdictional relationships of New York State's public services to the economic realities of the early l990's. In organizational terms, economic realities are identified as the growing proliferation of specific instances where there is an immediate need to "rebalance" the on-going operations of state government and adapt to "unexpected" shortfall alterations in annual estimates of revenues or expenditures.

The policy implications of economic instability are of special concern for small district educational jurisdictions. Today, fiscal uncertainties juxtapose

and compound the long standing paradox of trying to eliminate some "inefficient" k-12 jurisdictions while implementing a statewide reform agenda designed to dramatically decentralize operations so the "whole village teaches the child" in what may prove to be the same k-12 jurisdictions.

In New York State, the attempt to to eliminate small k-12 districts by consolidation has a history of continual implementation since the late 1950's while the decentralization policy is the hope for educational revitalization entitled Compact for Learning and expected to continue into the mid 1990's.

Public Education Must Overhaul or Disintegrate

Public education in New York seems to be in the watershed condition of either dramatic overhaul or disintegration of its most basic characteristics. Pessimists in the group calling for major reorganization conclude that k-12 revitalization means drastic "downsizing" of the entire operation, arguing the added compensatory resource costs of close to four billions of dollars between 1984 and 1990 failed to improve achievement production.

Optimists calling for dramatic change may have concluded that the same 1980's compensatory investments were long term efforts necessary to strengthen the k-12 "infrastructure" and will pay off when coupled to the new Board of Regents reform initiative or, perhaps, the proposed national agenda of the Bush Administration's Education 2000 policy.

In either case, the policy question facing New York State today seems no long "if" such major restructuring actions are critical, but "how" to proceed with large scale transformation of the public school system. This seems true whether the present bureaucratic system of New York's schools ultimately becomes little more than a confederation of "local site managed operations", some binary state system of New York City and the rest of k-12 districts , or even a subset of some new national consortium system of education.

In reality, the early 1990's fundamental restructuring demands have the short run implications of an exploding volcano, for the critics now calling for total abolishment of public schools are far beyond the traditional conservative bashing of errant "progressive" or "Deweyite" educators for being too liberal(3). Within the

economic arguments of 1990's "choice" about producers and consumer systems , it is easy to understand the revolutionary implication of Chester Finn Jr.'s conclusion that "the political control of public education is inherently and incurably opposed to an education system that is consumer responsive"(4). Such an assertion sets the stage for further rationalizing the need for "blowing up the system" and "radically changing the rules of the game" for the politics of compulsory schooling.

Instead of academically sterile debate over "clients" using voucher mechanisms we now draw public education analogies to the disintegration of the Soviet Union, branding those who continue to believe in the viability of the existing public school structure as "too insulated professionals" or "too complacent citizens"(5).

Coming back from the brink of such either-or, all-nothing hyperbole means that educational policymakers must be willing to consider the existing organizational structure of public school districts as the mosiac of operational realities that it is. In particular, there must be a clear cut acknowledgment that jurisdictional size or remoteness must be coupled to adequate measures of scale, sparcity and public service "embeddedness" to adequately judge effective consolidation or decentralization policy(6).

In anticipating the obligations of Compact for Learning improvement, it must be conceded that 1100 children housed in a single elementary or secondary school is qualitatively different from the equivalent number of pupils being served as a district with all k-12 grades. The curricular policy issue is, of course, to systematically identify those jurisdictions where it is reasonable to make a local school site versus k-12 district choice on the "necessarily small" criteria of academics and size. If, for example, New York City finds it more convenient to envision itself as "1000 schools" than one k-12 district or five community boroughs, then local site management and site based performance are the primary concerns in assessing the meaning of "proper" jurisdiction in that situation.

In contrast, remote or nonmetropolitan regions of the state may find that the small central school district best format the same questions of appropriateness to other public service governments and a mosiac of "applied" technology distinctions of

larger scale(7).

The ≥1100 Jurisdiction with Enrollment as Dependent Variable

Appendix 1 illustrates a full and reduced cohort of ≥1100 districts when identified l990 pupil enrollments are related to ten descriptor indices in simple regression equations. To describe consistency between total cohort and metropolitan subset of the ≥1100 jurisdiction on an indice by indice basis we can utilize the simple regression format, while estimating the overall homeogenity of variance to the true population effect as multiple regression for all descriptors (8).

Multiple regression of the full cohort revealed cumulative variance to the l990 enrollment dependent variable, accounting for (correlation squared) of .89 with a F Test value 147.2. The instruction expenditure was the primary descriptor(t=9.3) of beta weight differences, followed by the +/-500 threshold (t= 4.8) and combined wealth ratio(t=2.2), all statistically significant at .02 or better.

When the reduced, nonmetropolitan cohort was assessed by the same multiple regression format, the overall variance of indices accounted for was .92, with an F Test of l75.11. Again, instruction expenditures revealed the largest t value(t=8.7), followed by the +/- 500 threshold(t=4.0) and expenditures for general support(t = 2.2), all statistically signifcant at .02 or better.

For statelevel policy makers interested in homeogenity of the ≥1100 jurisdiction cohort, there are two distinctive features of "small". First, in both analyses, the expenditures for instruction best estimates the variation of l990 district enrollments follwed by the distinction of supersmall(≥500 in k-12) districts. When the full cohort is considered 31 %(65 of 205) districts are supersmall or ≥500. For the reduced cohort 35 %(61 of l70) are ≥500.

Second, combined wealth ratio is statistically significant with the full cohort, but not the reduced grouping while expenditures for general support is significant for the reduced cohort, but not the full cohort.

Given that it is possible to profile a k-12 district cohort by patterns of particular intravariations among revenue-expenditure indices, it is also possible to further identify specific small districts contributing most and least to such

patternings. Focussing upon the expenditure for instruction and expenditures for general support, we can see that essentially the same "metropolitan, New York City suburb" ≥1100 jurisdictions are in the top ten rankings

In the bottom ten rankings none of the districts ranked by of instruction or general expenditures are "metropolitan" jurisdictions. The top recipients of most dollars from state aid revenues are, essentially, a nonmetropolitan district ranking. Ranking allows relatively high spending districts like Rensselaer and Fort Plain can be distinguished by primary source of revenue from other high spnding districts like Hadley-Luzurne or Tri Valley.

Expenditure and Revenue Indices for ALL Districts With ≥1100 Pupil In K-12 Grades

	EXPENDITURES		**REVENUES**	
gen. support	**administration**	**• instruction**	**state aid as $**	**• real prop. as $**
Top Ten	Top Ten	Top Ten	Top Ten	Top Ten
Elmsford	Bronxville	Putnam Valley	Edward Knox	Croton-Harmon
Bronxville	North Salem	Croton-Harmon	Rensselaer	Blind Brook
Pleasantville	Blind Brook	Bronxville	Dalton-Nunda	Bronxville
Rye Neck	Croton-Harmon	Pleasantville	South Manor	Briarcliff
Valhalla	Briarcliff	Briarcliff	Ft. Plain	Pleasantville
Croton-Harmon	Elmsford	Dobbs Ferry	W. Canada Valley	Dobbs Ferry
Southold	Valhalla	Valhalla	Brushton Moriah	Valhalla
Rensselaer	Rye Neck	North Salem	Onondaga	Rye Neck
Blind Brook	Pleasantville	Rye Neck	Cherry Valley	North Salem
Dobbs Ferry	Putnam Valley	Blind Brook	Middleburgh	Putnam Valley
Bottom Ten	Bottom Ten	Bottom Ten	Bottom Ten	Bottom Ten
Minerva	Andes	Brookfield	Schroon Lake	Jasper-Troup
Andes	Long Lake	Jefferson	Andes	Brookfield
Whitesville	Indian Lake	Cohocton	Bolton	Scio
Mt. Upton	Narrowsburg	Whitesville	Minerva	Whitesville
Fisher Island	Hammond	Long Lake	Bridgehampton	Friendship
Keene	Keene	Mt. Upton	Wells	Bradford
Richmondville	Wells	Newcomb	Indian Lake	Savona
Lyme	Westport	Minerva	Shelter Island	Richberg
Wells	Newcomb	Andes	Newcomb	Edmeston
Limestone	Prattsburg	Keene	Long Lake	Mt. Upton

Same Expenditure and Revenue Indices for the Reduced Cohort of ≥1100 Districts

Top Ten	Top Ten	Top Ten	Top Ten	Top Ten
Rensselaer	Rensselaer	Rensselaer	Pavilon &	Putnam Valley
Tri Valley	Schodack	Hadley-Luzurne	Bolivar	Haldane
Lake George	Lake George	Warrensburg	**replace**	Tri Valley
Brushton-Mor.	Ticonderoga	Waterford-Halfm	Onondaga &	Lake George
Afton	Pavilon	Tri Valley	South Manor	Ticonderoga
Honeoye	Ft. Plain	Ticonderoga		Hadley-Luzurne
Schodack	Canajoharie	Lake George		Hammondsport
Avon	Alexander	Ft. Plain		Waterford-Halfmoon
West Canada Val.	Hadley-Luzurne	Kendall		Hunter-Tannersville
Poland	Alfred-Almond	Putnam Valley		Naples
Bottom Ten	**Bottom Ten**	**Bottom Ten**	**Bottom Ten**	**Bottom Ten**
Sharon Springs **replace**			Narrowsburg & Webb **replace**	
Fisher Island	Same as Full	Same as Full	Bridgehampton & Shelter Is.	Same as Full

Tracing particular low or high ranked districts can open the policy door to a second iteration of "why" questions. We are on the threshold of policy discussion about the "necessarily" small district by context versus the politically gerrymendered district small "by choice". Such calculations of wealth and fiscal capability differences by "fairness" or "equity" concerns demand further specification of expenditure and revenue distinctions of particular districts such as; the l990 combined wealth ratio, full value per enrolled pupil(rounded to ooo) as the taxable valuation of real property in the l988-l989 school budget, the percent of increase or decrease received by a particular district in the l990 budget and the l990 dollars per pupil in combined average daily membership.

When we consider the relative wealth ratio and the "effort" indices of taxable value to full value and dollars per each child, the top ten ranking reveals the impact of jurisdictions with very small enrollments, such as Fishers Island(n=47), Bridgehampton(n=174), Shelter Island(n=267), Newcomb(n=97) and Long Lake(n=135).

The bottom ten on the same indices shows the some of the same districts who were in the top ten of the state aid dollars received (eg. Fort Plain , Edward Knox or Brushton-Moriah) or the bottom ten of the real property tax revenues received

(eg. Whitesville, Friendship, Scio). Further, the reduced cohort emphasizes the same ten to fifteen districts who are the poorest and/or making the least educational effort among the ≥1100 jurisdictions.

The l990 state budget was completed in the first of the "shortfall" years when New York legislators realized the softness of state revenues and were beginning a conservative fiscal stance. It is interesting to note how much the districts which received the greatest increases or decreases in their operating budgets were not the districts directly identified in this study of top and bottom ten ranking for revenue/ expenditure or capability/effort indices. For example, if Minerva, Wells and Schroon Lake are districts all receiving the least state aid dollars, why were two receiving the greatest increases in l990 and the other among the greatest decreases given ? We will return to the allocative questions of the l990 educational state aid later.

Selected Wealth and Fiscal Capacity Indices for All ≥1100 k-12 Districts

Combined Wealth Ratio	**Full Value per Enroll**	**% +/- 1990 Budget**	**CAADM $per Pupil**
Top Ten	Top Ten	Top Ten(+)	Top Ten
Fisher Island	Fisher Island	Roxbury	Fisher Island
Bridgehampton	Bridgehampton	Florida	Newcomb
Shelter Island	Shelter Island	Belmont	Bridgehampton
Tuxedo	Sag Harbor	Minerva	Elmsford
Sag Harbor	Bolton	Cincinnatus	Bronxville
Bronxville	Southold	Tri Valley	Shelter Island
Jasper-Troup	Long Lake	Wells	Long Lake
Briarcliff	Downsville	Worchester	Blind Brook
Elmsford	Webb	Colton-fine	Croton-Harmon
Blind Brook	Bronxville	Windham-Ashland	Briarcliff
Bottom Ten	Bottom Ten	Bottom Ten(-)	Bottom Ten
Herman-Dekalb	Heuvelton	Pawling	Fillmore
Cincinnatus	Herman-Dekalb	Lake George	Worchester
Whiteville	Richburg	Schroon Lake	Stamford
Campbell	Scio	Oppenheim-Emphrath	Brocton
Fort Plain	Moriah	Elmsford	Arkport
Richburg	Brushton-Moriah	Millbrook	Scio
Edward Knox	Bradford	Avon	West Canada Valley
Scio	Friendship	Hamilton	Edmeston
Brushton-Moriah	Campbell	Romulus	Hinsdale
Friendship	Bolivar	Campbell	Cuba

Reduced Cohort of Nonmetropolitan Districts

Top Ten	Top Ten	Top Ten	Top Ten
Jasper-Troup	Bolton		Newcomb
Webb	Long Lake	Same as Full	Long Lake
Long Lake	Downsville		Minerva
Bolton	Webb		Bolton
Schroon Lake	Hunter-Tanner		Downsville
Hunter-Tannerville	Schroon Lake		Webb
Downsville	Windham		Andes
Indian Lake	Indian Lake		Indian Lake
Newcomb	Lake George		Wells
Lake George	Andes		Keene
Bottom Ten	Bottom Ten	Bottom Ten	Bottom Ten
Same as Full	Same as Full	Middleburgh, Chateaugay & Wyoming **replace** Millbrook, Pawling & Elmsford	Same as Full

The≥1100 Jurisdiction Using % Regent Graduates as Dependent Variable

A second perspective of the same cohort of ≥1100 in k-12 school districts should be more familiar to production function advocates.

Where the previous analyses of enrolled clients served in grades k-12 provides the organizational grounds to talk about districts as an operating bureaucratic system , it cannot distingish outcomes. The percent of l990 graduates that receive Regent Diplomas provides one form of output consideration that infuses academic concerns to organizational production issues. Some would argue that achievement scores on standard tests affecting all clients provides a more objective and comparable basis for determining the total results of schooling. Others would argue that all graduates, regardless of type of diploma, or diplomas coupled with data on those who dropped out between grades 9-12 is the output measure of organizational production necessary.

The special population illustrated by percent of graduates receiving Regent Diplomas was selected because New York's educational establishment has recently committed to the concept of mastery learning and the value of the Regents diploma as the example of exemplary production preferred in the Compact for Learning reform agenda(10).

Appendix 2 illustrates the full and reduced ≥1100 cohort when the

percentage of Regent diplomas for 1990 graduates was the dependent variable studied in relationship with eleven descriptor indices. Multiple regression of the Regent Diploma dependent variable reveals a low cumulative variance accounting, with .25 for the full cohort and .30 for the reduced grouping. With this notation, however, there are interesting intergrouping differences.

When all 205 small central districts are considered by percent of Regent Diplomas, the enrollment in Regents Government/History courses has a t value of 2.7 while the 1988 percentages of Regent graduates a t value of 2.6. With the reduced cohort of 170 nonmetropolitan districts, the 1990 Regent Diploma is related to enrollments in Regents English(t=2.6),, the 1988 Regent Diploma percentage(t=2.5) and the enrollment in Regent intermediate mathematics(t=2.0), all statistically significant at .04 or better.

Selected Academic Output and Secondary Enrollment Indices

90 Regent Diploma	**88 Regent Diploma**	**90 English Enrollment**	**90 Govt Enrollment**	**90 College Bound**
Top Ten	Top Ten	Top Ten	Top Ten	Top Ten
Shelter Island	Shelter Island	Oppenheim-Emp.	Onondaga	Newcomb
Herman-Dekalb	Pawling	Ticonderoga	Newcomb	Blind Brook
West Canada Valley	Wheatland-Chili	Jefferson	Bolton	Bronxville
Long Lake	Belmont	Morristown	St. Regis Falls	Pleasantville
Geneseo	Manchester	Minerva	Frewsberg	Briarcliff
Jeffersonville	Cohocton	Herman-Dekalb	Ticonderoga	Livingston Manor
Hadley-Luzurne	Indian Lake	Newcomb	Oppenheim-Emp	Haldane
Madrid	Sherman	Onondaga	Morristown	Tuckahoe
Pleasantville	Hadley-Luzurne	Bolton	Sackett Harb.	Croton-Harmon
Jefferson	West Canada Valley	West Canada Val.	Minerva	Valhalla
Bottom Ten	Bottom Ten	Bottom Ten	Bottom Ten	Bottom Ten
Franklin	Eldred	South New Lebanon	Green Island	Angelica
Richberg	Margaretville	Newfield	Franklin	Richberg
Chazy	Parrishville	Shelter Island	Willsboro	Crown Point
South New Lebanon	Franklin	Eastport	Rushford	Downsville
Richmondville	Keene	Fisher Island	South New Lebanon	Oppenheim-Emp
Rushford	South New Lebanon	Roscoe	Newfield	Lyme
Willsboro	Mt. Upton	Bronxville	Blind Brook	Florida
Oppenheim-Emphrath	Canaserga	South Manor	Putnam Valley	Limestone
Croton-Harmon	Willsboro	Putnam Valley	Bronxville	Bridgehampton
Bronxville	Bronxville	Blind Brook	South Manor	Savona
Blind Brook	Blind Brook	• last 4=zero	•last 4=zero	
•last 2-zero	•last 3=zero			

Reduced Cohort of Non Metropolitan Districts

Top Ten	Top Ten	Top Ten	Top Ten	Top Ten
Angelica **replace** Shelter Island	Morristown, Lisbon,Webb **replace** Pawling, Shelter Island & Wheatland-Chili	Hammond **replace** Onondaga	Hammond **replace** Onondaga	Wells, Hamilton, Milford, Webb, Lake George, Lisbon, Bemus Point **replace** Tuckahoe, Pleasantville, Blind Brook, Bronxville, Briarcliff ,Valhalla, Croton-Harmon.
Bottom Ten	**Bottom Ten**	**Bottom Ten**	**Bottom Ten**	**Bottom Ten**
Crown Point, Margaretville, Clifton-fine **replace** Croton-Harmon Bronxville, Blind Brook	Bradford, Whitehall, **replace** Bronxville Blind Brook,	Lyme, Marathon, Rushford, Franklin, Willsboro, Clifton-fine **replace** Bronxville,Shelter Island,Blind Brook, South Manor, Fisher Island, Eastport.	Margaretville, Hancock & Richberg **replace** South Monor, Blind Brook & Bronxville	South New Lebanon **replace** Bridgehampton

As of l990, about one-tenth of all the ≥1100 districts in New York were giving Regent diplomas to half or more of their graduates while a little over one-fourth of all ≥1100 districts were giving Regent diplomas to less than 30 percent of their high school graduates.

The value of considering the "college bound" indice is that it may help to explain"zero percent" cases of certain districts like Blind Brook and Bronxville and, simultaneously, point out anomaly situations like Angelica district(top ten in 90 Regent Diplomas but bottom ten in college bound expectations). Select districts around metropolitan New York City believe their individual curriculums are far superior to that of the statelevel Regent programs and acknowledging this "quirk" in the state's particular meaning of educational productivity provides a natural gateway for further discussion of applying cohort information to consolidation and decentralization policies.

Conclusions About New York State's Small Districts

Several conclusions are evident to those who would analyze small k-12 districts as a distinct cohort of school jurisdictions. Foremost, although the

literature may lead us to conclude that special features of supersmall size(eg. under 500 in grades k-12) are most important in making policy judgments about this organization, the expenditures for instruction is the most significant descriptor indice for all ≥1100 jurisdictions. Once the primacy of instructional spending is acknowledged however, we can see that super small districts in metropolitan areas are better described with combined wealth ratio as supplement information but expenditures for general government support in nonmetropolitan locations. .

The rank ordering of individual small districts by instructional expenditures and property tax revenues leads to the second conclusion that a small cluster of districts are most identifable at the extremes of the cohort patterning. Among all 205 ≥1100 jurisdictions, there are ten districts who receive the most monies from their property tax payers and spend the most on instruction for their students (Croton-Harmon, Blind Brook, Bronxville, Briarcliff, Pleasantville, Dobbs Ferry, Valhalla, Rye Neck, North Salem and Putnam Valley). All ten districts are located in suburbs around New York City and all but one (Putnam Valley) would be classified "metropolitan" for this analysis.

A third conclusion derived from the same district by district ranking is that there are a cluster of nonmetropolitan districts which spend the least aggregate dollars on instruction but differ in those that receive the smallest amounts of revenues from property tax(Mt. Upton, Brookfield) and those with the smallest percent from state aid(Andes, Minerva, Newcomb,Long Lake).

A fourth conclusion is about a similar clustering of nonmetropolitan districts that spend the most on instruction and receive most of their revenue dollars from property taxes (Putnam Valley, Hadley-Luzurne, Tri Valley, Lake George, Ticonderoga and Waterford-Halfmoon) and those that spend the most dollars on instruction but receive most of their revenues from state aid (Rensselaer and Fort Plain).

Assuming combined wealth ratio, tax effort made in relation to full assessed value and dollars spent on children in average daily membership are indices of "capacity", we find the metropolitan districts of Fisher Island, Bridgehampton, Shelter Island and Bronxville in the top ten along with the nonmetropolitan districts

of Long Lake, Bolton, Indian Lake and Webb districts.

A sixth conclusion is that most of those ≥1100 districts receiving the highest percentages of Regent Diplomas among their graduating seniors in 1988 and 1990 are monmetropolitan. However, only nonmetropolitan Hadley-Luzurne and West Canada Valley districts were in the top ten rankings for both years. Among the bottom ten in Regent diploma output we find the metropolitan districts of Bronxville and Blind Brook joining the nonmetropolitan districts of Margaretville, South New Lebanon and Willsboro as multiyear repeats.

When enrollment patterns in Regents English and Government courses are considered by individual district rankings we find two patterns. Among top ten districts in both subjects there is only the metropolitan district of Onondaga (suburban Syracuse) and the nonmetropolitan districts of Ticonderoga, Oppenheim-Emphrath, Morristown, Minerva, Hammond and Bolton. None of these districts had the highest percentages of Regent graduates in 1988 or 1990 and Oppenheim-Emphrath was actually ranked in the bottom ten Regent graduates for 1990.

For ≥1100 jurisdictions with the lowest rankings in both Regent English and Government enrollments, we find the nonmetropolitan districts of South New Lebanon, Newfield, Rushford, Franklin and Willsboro and the metropolitan districts of South Manor, Bronxville and Blind Brook. All but Newfield and South Manor were among the lowest percentages of Regent graduates for 1988 and 1990

The indice of "college bound" intentions of seniors adds the ninth and final conclusion about the educational productivity of the ≥1100 cohort. The listing of Bronxville, Blindbrook and Croton-Harmon in the top ten suggests that Regent diploma or Regent enrollments are not the only indices of postsecondary orientation that should be taken as a measure of secondary school productivity. Further, the anomaly of Angelica as a nonmetropolitan district among the highest in 1990 Regent diplomas but among the lowest in college bound orientation and surprising Oppenheim-Emphrath district, with the highest Regent enrollments in government and English but the lowest rankings in both college bound intentions and Regent diploma productivity, demands further scrutiny of output measures as much as

concern for ongoing practices.

Policy Concerns about Consolidation and Decentralization

The second purpose of this study was to consider the implications of small districts and the educational policies of consolidation and reform decentralization which could be affected by the "embeddedness" within a regional or area "family of governments". As noted earlier, consolidation interests may be concerned with eliminating inefficient jurisdictions while, paradoxically, reformers may be looking at the same districts as new forums of decentralized operations. Conditions of economic shortages only heighten the need to carefully consider the impact of such contradiction upon ongoing operations.

One one hand, there has been a conscious effort since the late l950's to lower the overall numbers of local school districts in New York State and, especially, eliminate the "inefficient" k-12 districts that cannot demonstrate an argument for being "necessarily small"(11). Without going into the long debates about the value of centralizing certain services or consolidating particular functions, the application of both size and scale arguments for eliminating k-12 jurisdictions has been primarily a "nonmetropolitan" or rural phenomenon throughout the nation(12).

On the other hand, the recent commitment of the New York Board of Regents to an extended, multiyear curriculum reform venture entitled Compact for Learning gives hope to the ≥1100 in grades k-12 cohort for more enlightened forms of scrutiny. As noted earlier, the Compact emphasis on decentralized accountability and localized authority to conduct public education reforms has varying obligations for all types of school jurisdictions within the existing statewide structure.

The mandated necessity of district level goal setting and curricular planning involving the "whole village" guarantees that k-12 systems will consider their on-going relationships to the entire family of public service governments and private sector interests which determine the localized value of schooling. Is it possible that some local communities will determine that the schools do not need the Regents program or decide to combine certain educational expenditures with similar resources from other local municipal governments? The fact that such options are

possible, although unlikely today, means that any classification or assessment of a particular district must be contextually sensitive to its potential in an evolving future.

The organizational information on the ≥1100 cohort (as analyzed above) seems to suggest broad outlines for "cherry pick" policies about elimination of specific small districts or where to emphasize a decentralized reform agenda based upon most obvious need or greatest demonstration of "best bet" by a clustering of districts. However, specific policy guidelines for action seem to demand additional appraisal of the actual policy context which "embeds" any particular small district. The following is a suggestion that the clustering of nonmetropolitan districts in the ≥1100 cohort can be understood within the context of another "nested" public service government.

Logically, we can relate specific school based information about particular nonmetropolitan district jurisdictions with municipal information about the rural county jurisdictions, but the intellectual task becomes almost impossible when metropolitan small districts are identified in a big city and large suburban district context. There are a host of reasons why the metropolitan context is qualitatively different, including the sheer weight of numbers and types of overlapping municipal governments, the proximity of fiscally dependent city school districts and so forth. For these reasons, the following illustration to consider the "embeddedness" of small district for consolidaton or decentralization policy is delimited to the nonmetropolitan, upstate or rural portions of New York State.

County jurisdiction affect the k-12 educational domain through the special funding implicatioins of special education and community colleges and, consequently, there seems a natural connection for future potentials in shared service relationships. When the county is juxtaposed to the nonmetropolitan small central district as overlapping governments we have a start to consider the meaning of "necessarily" as the embedded nature of select ≥1100 jurisdictions.

Within the past decade, there have been several systematic attempts to identify county structures in New York State by their"ruralness". One by Ebert(13) utilized the proximity of a county location to a city and identified four

versions of decreasing "urbanness"; extensive, considerable, moderate, and limited. Appendix 3 provides general demographic information that seem important when establishing definitional boundaries for several public service jurisdictions in an intellectual overlay of 170 "nonmetropolitan" school districts to 44 "rural" county jurisdictions (out of the 61 jurisdictions counting New York City boroughs as "counties"): citizen population to school based k-12 population, the numbers of all k-12 districts to number of small central districts and the Ebert classification.

It is important to note that four "rural" counties (Chemung, Oswego, Schuyler and Ulster) have no nonmetropolitan districts of ≥1100 size and would be overlooked if some regional analysis of shared services were not sensitive to this k-12 size feature. An initial attempt to combine rural county information to the found clustering of high and low ranking nonmetropolitan districts in the ≥1100 cohort analysis should probably address relative wealth capabilities and remoteness relationships to the judgment of what constitutes "necessarily" small jurisdictions.

The following information identifies by county all nonmetropolitan districts with extremely low combined wealth ratios(.2 or .3),all those with high (above 1.0) ratios and those districts identified in the earlier cohort analyses of top and bottom ten rankings of combined wealth(**presented in bold face type**).

Rural Counties Including Districts With Extreme Rich and Poor Wealth Ratios

County	Poorest Districts	County	Wealthest District
Alleghany	Angelica,Belfast, Bolivar, **Friendship, Richburg, Scio, Whitesville**	Columbia	New Lebanon
		Delaware	Andes, **Downsville**, Margaretville
		Greene	**Hunter-Tannersville**, Windham
Cattaragus	Hinsdale,Limestone	Hamilton	**Indian Lake**,Wells, **Long Lake**
Cortland	**Cincinnatus**, Marathon	Jefferson	Belleville
Franklin	**Brushton-Moriah**		
		Putnam	Haldane, Putnam Valley
Lewis	Copenhagen	Sullivan	Eldred, Narrowsburg,Tri Valley
Madison	Brookfield, DeRuyter,Madison	Warren	**Lake George**, North Warren, **Bolton**
Montgomery	**Ft. Plain**, St. Johnsville		
Washington	Hartford		

Counties with both Richest & Poorest Districts

Chautagua	Belfast	Chautagua	Chautagua
Essex	Moriah	Essex	Keene, Lake Placid, **Newcomb**, **Schroon Lake**, Wells
Herkimer	Brocton	Herkimer	**Webb**
St. Lawrence	**Edward Knox**, **Herman-Dekalb** Heuvelton, Lisbon	St. Lawrence	Colton-fine
Steuben	Bradford, **Campbell**, Savona	Steuben	**Jasper-Troup**

Three patterns of county identity emerge from this scheme. Alleghany, Cortland, Franklin and Montgomery counties have only poorest ≥1100 jurisdictions while Delaware, Greene, Hamilton and Warren counties have ≥1100 districts which are relatively wealthy. Essex, St. Lawrence, Herkimer and Steuben counties have both poor and wealthy ≥1100 jurisdictions within their borders.

Do these district patterning of district wealth extremes relate readily to rural county characteristics? Using Appendix 3, we see that general county demographics do not match district combined wealth classifications. The twelve counties range from a total citizenry of 5,000 in Hamilton to more than 111,000 in St. Lawrence county. When the square miles of the county are divided by the county population, we find a difference in density ranging from Hamilton's 3.0 to 128.3 in Montgomery county. In terms of actual students served, Hamilton represents an extreme of less than a l000 pupils in k-12 while St. Lawrence and Steuben counties have more than 21,000 pupils in their k-12 population.

When the ≥1100 jurisdictions in the twelve counties are considered as the percent of their total k-12 districts , we find a proportionate range from one third in Greene county(2/6) to nearly ninety percent in Alleghany(14/16) and Essex(10/11) counties. Finally, the Ebert classification scheme registers confusion in fitting classifications of limited, moderate, considerable and extensive "urbanness" to rich and poor districts defined by combined wealth ratios.

However, compiling select fiscal information about each of the same twelve counties,and the internal variation of all school districts within their respective boundaries, does help to reconsider the rank order of +/- nonmetropolitan districts by combined wealth ratio. The following information presents the percent of county

expenditures for school district activities, all county expenditures in thousands of dollars, the dollar expenditures for regular instruction of all districts in the county, the total revenues of the highest and lowest school district, the assessed valuation of the highest and lowest school district and the actual property/real tax revenues for the highest and lowest k-12 district within the county.

	COUNTY		Combined School Districts						
County	% EXP Sch Dists	All EXP $ (ooo)	REG Instr$	TOT REV high	TOT REV low	ASS VAL high	ASS VAL low	PROP/REAL high	PROP/REAL low
bottom ten ranked only									
Alleghany	47%	6040	3255	926	176	99	7	2105	725
Cortland	43%	6079	3570	1763	427	100	55	1794	938
Franklin	52%	6686	3717	1740	271	52	4	3608	290
Montgomery	47%	6054	3388	2320	441	72	19	2327	1772
top ten ranked only									
Delaware	44%	6144	3316	885	146	264	30	7328	1337
Greene	43%	6179	3312	1069	369	132	14	6740	2167
Hamilton	34%	9988	5039	208	20	320	16	17807	5944
Warren	46%	6384	3598	1786	266	665	25	7802	2162
mixed top and bottom rankings									
Essex	32%	6658	3561	546	150	79	2	16314	832
St. Lawrence	55%	7012	3468	1869	308	144	7	6125	859
Steuben	52%	6275	3299	3725	180	104	5	3899	717
Herkimer	47%	5909	3099	1022	194	103	7	3250	527

In terms of all fiscal characteristics, the anomaly situation in Hamilton county continues to confirm itself. When focussing on the percent of county expenditures used for school district purposes, it is clear that Hamilton and Essex counties would present one kind of "embedded story" and Franklin, St. Lawrence and Steuben counties quite another.

Those most interested in the credibility of the combined wealth ratio as a valid descriptor indice would probably focus upon the assessed valuation of low and high districts. Under this assessment it would seem that "mixed" Essex county should be grouped with other "bottom" four CWR counties. Cortland county must be considered a separate story on grounds of the lowest district assessed valuation while Warren county wouldbe considered separately on the grounds of highest district assessed valuation.

The most direct relationship to clumping of rich and poor districts based upon combined wealth ratio is found in the high/low district distinctions of property and real tax revenues. While the integrity of the four bottom ranked and four top ranked counties remain, the mixed ranking would split two and two; Essex and St. Lawrence with the top ranked "rich" oriented counties and Steuben and Herkimer with the bottom ranked "poor" counties. This reclassification would further emphasize the particular district that stands out in contrast to the new binary groupings(the poor district of Moriah in Essex county , the poor districts of Edward Knox, Herman-DeKalb, Heuvelton and Lisbon in St. Lawrence county, the rich district of Jasper-Troup in Steuben county and the rich district of Webb in Herkimer county).

Conclusions About Overlapping School District and County Jurisdictions

Although the case for considering expenditure and revenue information in tandem seems logical, and the specific differences that occur when starting from a district or county set of jurisdictional assumptions seem clear, there remains many questions of "impact" and actual location within "upstate" New York. For example, the Ebert classification (see Appendix 3), which is based upon proximity of an upstate county to a large city or Standard Metropolitan Statistical Area, makes no sense when applied to our twelve county illustration of extreme ≥1100 districts.

Further, nine of the twelve counties contain ≥1100 districts classified as most remote on basis of a ratio of low student membership to large geographic location(14). What seems most interesting for consolidation or decentralization policy discussions are those most remote small districts, previously identified as most poor or most wealthy, which might centerpiece specific county activities and intergovernmental arrangements; Downsville in Delaware county, Newcomb and Schroon Lake in Essex county, Hunter-Tannersville in Greene county, Indian Lake and Long Lake in Hamilton county, Webb in Hamilton county, Edward Knox in St. Lawrence county and Jasper-Troupsburg in Steuben county.

Further Considerations for the Future of "Embedding" Small Districts

While county jurisdictions seem a logical linkage, there is at least one additional overlay of a type of jurisdiction which would directly affect educational practice in nonmetropolitan area. Some upstate or rural counties in New York State

incorporate a special form of k-12 school district called a small city jurisdiction.

Although not "urban" in the big city sense of being fiscally dependent districts, the small city school district does have special taxing features (historically called HURD aid) and other characteristics which are likely to modify the generic "ruralness" of a particular upstate county(15). For example, multiple regression of 43 such small city jurisdictions with I990 enrollment as the dependent variable reveals .98 of all systematic variation accounted(correlation squared) and statistically significant t values for instruction expenditures(4.9) and district size(2.8). When the I990 Regent diploma percent is presented as the dependent variable to productivity descriptor indices, the variance accounted for was .78, with the t values of percent of students receiving free or reduced lunches(3.9), enrollment in advanced Regent math(2.8) and the I988 Regent diploma(2.7)were statistically significant at .01 or better . In short, there are enough clues of difference, especially in productivity output patterning, that the small city district should be added to any expanded equation of "embedded" upstate county in need of "nested" planning with educational jurisdictions.

Finally, The dramatic cutbacks that greeted the I990's decade should be scrutinized as an economic phenomena which affects the consideration of all public service jurisdictions in uncertain ways. It is a stretch to find a simple policy strategy to rationalize the biggest gainers and losers in the FY I990 budget allocations.

An illustration of the impact of statelevel policies on particular nonmetropolitan districts and county combinations are district rankings for the final I990 budget (as an increase or decrease in percents from previous year) and a ranking of mandatory dollar "shortfall" reduction of the I990 fiscal year operating budget by special action of the New York legislature in November I990.

The closest "shortfall" cuts in operations are to any data considered previously is that six of the smallest cut districts are in the lowest ten of districts receiving revenues through property and real tax revenues compared to five of the biggest dollar cut districts also being in the top ten districts receiving most of their revenues through property taxes. Finally, it is interesting that Florida district and

Clifton-fine district are among the biggest gainers in the FY 1990 budget although the first is in the bottom ten district with college bound seniors and the latter is in the bottom ten of districts with graduates receiving the Regent Diploma.

Final FY 1990 Budget Percentages

Biggest Gainers		Least Gained	
Roxbury	Delaware	Middleburgh	Schoharie
Florida	Orange	Chateaugay	Franklin
Belmont	Alleghany	Wyoming	Wyoming
Minerva	Essex	Lake George	Warren
Cincinnatus	Cortland	Schroon Lake	Essex
Tri Valley	Sullivan	Oppenheim-Emphrath.	Fulton
Worchester	Ostego	Avon	Livingston
Colton-fine	St. Lawrence	Hamilton	Madison
Windham-Ashland	Greene	Romulus	Seneca
Wells	Hamilton	Campbell	Steuben

"Shortfall" Deficit Cuts Made in Dollars

Smallest Cuts to be Absorbed		Biggest Cuts to be Absorbed	
Friendship	Alleghany	Johnsberg	Warren
Savona	Steuben	Lake George	Warren
Angelica	Alleghany	Tri Valley	Sullivan
Greenwood	Steuben	Putnam Valley	Putnam
Bradford	Steuben	Haldane	Putnam
Whitesville	Alleghany	Ticonderoga	Essex
VanHornesville	Herkimer	Lake Placid	Essex
Richberg	Alleghany	Elba	Genesee
Limestone	Cattaragus	Candor	Tioga
Brookfield	Madison	Waterford-Halfmoon	Saratoga

In the final analysis, the odd thing is that there seems to be so little systematic connection of the economic allocation formats of FY 1990 to any of the previous ≥1100 district or nonmetropolitan county discussions. Perhaps the most crucial question for those New Yorkers interested in the small school district policy, and solid public service planning leading to specific judgments about eliminating inefficiency or promoting decentralized reform, is whether the emerging political meanings of annual statelevel aid allocation and episodic emergency reductions make such systematic thinking a moot point.

References

1. Avrom Bendavid-Val, Regional and Local Economic Analysis for Practitioners, 4th Edition (New York: Praeger, 1991) pages 213-215. An explicit assumption about the 1990's is that public education will not be an isolated or self contained part of the public service sector and that the "marble cake" meaning of educational policy affects all levels of k-12 policy implementation.

2. The organizational description of the small district cohort was based upon the actual 1990 enrollment of clients served by a particular jurisdiction and the productivity description was based upon the percentage of Regent Diplomas given to 1990 graduates from the same district. Enrollment provided the basis for the systematic identification of patterns of internal variations of the compulsory organization, using expenditures and revenue descriptors of the jurisdiction. Percent of graduates with 1990 Regent Diplomas set the stage for a second organizational assessment; the relationship of of certain secondary school curriculum channels and the general socio-economic character of pupil clients as one demonstration of output productivity relationship.

Crucial research questions for both the enrollment and Regent graduate foci about cohort distinctiveness were framed to long standing issues of the "necessarily small" k-12 district; (a) whether such jurisdictions located in metropolitan areas of the state garnered and expended resources differently than similar districts in nonmetropolitian areas, (b) whether the general cohort would have a clearlyidentifable subset of supersmall districts under 500 total pupils and (c) whether ≥1100 districts in select nonmetropolitan counties would be further distinguished fiscal characteristics or geographic remoteness of any particular district's location.

To determine school district "ruralness" as a function of geography and servicing unpopulated areas, a sparcity index developed during the 1991 legislative session was used as descriptor variable for the reduced ≥1100 cohort of 170 nonmetropolitan districts. The sparcity indice provided four different classifications of nonmetropolitan small districts under study; no sparcity and three gradations of remoteness.

Expenditures and revenue data used for profiling full and reduced cohort meanings against the 1990 district enrollments were referenced to the 1988-1989 academic year as provided by the Second Fiscal Report of the New York State Education Department and the Special Municipal Report by the State Comptroller, both issued in December 1990. Expenditure indices included general support, administrative services, instruction and transportation. Revenue measures under study were property and real taxes, educational state aid and total revenue.

1990 k-12 enrollment, percentage of Regent graduates for 1990, curricular arrangements and socio-economic descriptions of secondary pupil clients within the school districts were taken from the New York: State of Learning document issued by the Board of Regents and State Education Department in January 1991. Curricular indices were delimited to secondary schools and included 1988-1989 enrollment patterns for Regent credit programs in intermediate and advanced mathematics(Regents Math 2 and 3), and enrollments in English, government and physics. Socioeconomic indices included percent of children receiving free or reduced cost lunches and percentages of annual teacher turnover in 1990. Finally, combined wealth ratio indice calculated for 1990 was used as a proxy measure of fiscal capability in both enrollment and Regent graduate analyses.

As the statistical analyses of the total and reduced district cohorts were simply descriptive, simple regression results were utilized to profile actual intravariation patterning of select indices to the dependent variables. Interpretation of found results

included a gross measure of variance accounted for (correlation squared), F test and T test measures of grouping differences and multiple regression analysis of pooled variation effects.

3. George Will, "Time to Abolish the Public Schools" Albany Times Union ,editorial page, August 25, 1991

4. Chester Finn, Jr. ,"Debate With Kirst" Politics of Education Bulletin, Fall, 1991 page 8

5. ibid., page 12.

6. Given present assumptions about school districts, it appears the relation between enrollment and quality is curvilinear with the overall scale an inverted U. See J. Riew, "Scale Economies, Capacity Utilization and School Costs" Journal of Education Finance, 1986, pages 433-446. Also see Edward McDill et al., "Raising Standards and Retaining Students: Impact of Reform Recommnedations on Potential Dropouts" Review of Educational Research Winter 1985, pages 415-434

7. The New York State Education Department linking of twelve upstate k-12 districts and BOCES together in a technological net is a good example of the "larger scale" possibilities. Unfortunately the TNT project was not funded for the AY 1990-91 year. For particular effects on educational organization, see Austin Swanson and Richard King, "Educational Technology and Staffing Decisions" in School Finance: Its Economics and Politics (New York: Longmans, 1991) Chapter 15. For discussion of how technology can tranform both authority and workplace relationships within large bureaucracy see Shoshana Zuboff, In The Age of the Smart Machine (New York: Basic Books, 1987)

8. For beta weight comparisons in estimating statistically significant difference in slopes of two variable linear regressions see Edward Tufte's Data Analyis for Politics and Policy (Englewood Cliffs: Prentice Hall, 1974 pages 73, 81-101) The ratio of estimated slope and standard error used for beta to estimate t distribution gives the rule of thumb that the regression coefficient should be roughly twice its standard error to reach the .05 two tailed limits with +/- 1.96 as standard deviation.

9. The Compact for Learning reform agenda, officially approved by the Board of Regents in June 1991, is designed to be implemented into the mid 1990's. Among its most important features is the concept of mastery proficiency to replace the current focus upon minimal thresholds of competence, replacement of statelevel oversite accountability with local jurisdiction responsibility and reemphasis on the Regent curriculum in secondary schools.

10. See relationship of Heald Commission to a three decade historical effort to reach a final number of 500 districts in Joan Gaverlik "Consolidation of New York School Districts: 1958-1988" doctoral dissertation, The University at Albany, May 1991. For specific efforts to distinguish the criteria for necessarily small school districts from small by choice school districts in consolidation decisions see Legislative Commission on Rural Resources, Rural New York in Transition(Albany, January 1985) pages 133-167.

12. For example, David Strang, "The Administrative Transformation of American *Education: School District Consolidation 1938-1980"* Administrative Science Quarterly *32,* 1987, pages 352-368 and W. J. Fowler, Jr., "School Size, School Characteristics and School Outcomes" paper presented at the American Educational Research Association, San Francisco, 1989

13. Paul Ebert, Socioeconomic Trends in Rural New York State (New York: State Legislative Commision on Rural Resources, September 1984)

14. Sixteen counties have ≥1100 districts which would be identified as most remote according to the sparcity index. Alleghany(3), Chenango(1),Delaware(4),Essex(7), Franklin(3),Fulton(1), Greene(1), Hamilton(3),Herkimer(3), Lewis(1), Madison(1),Schoharie(2),St. Lawrence(5), Steuben(1), Sullivan(2) and Warren(2).

15. Senate Research Service, Summary of Legislation, 1988 (New York State Senate, Albany, New York) Section 12,

Appendix 1a.

All ≥1100 k-12 Districts (n=205) 1990 Enrollment

Indices	R^2	F Test	Probability	T Test	Intercept	Slope
+/- .500	.62	325.4	.0001	18.0	-88.3	436.1
Sparcity Index	.07	16.0	.0001	4.0	757.0	-50.2
Expenditures General Support	.32	94.7	.0001	9.7	308.9	1.0
Administration	.45	168.5	.0001	12.9	423.3	.8
Instruction	.71	498.0	.0001	22.3	175.8	1
Transportation	.44	159.7	.0001	12.6	328.5	1.1
Comb. Wealth Ratio	.03	7.2	.007	2.6	684.5	-47.9
Revenues Prop & Real Taxes	.17	42.7	.0001	6.5	532.2	.6
State Aid	.44	157.4	.0001	12.5	327.8	.1
Total Revenues	.64	360.2	.0001	18.9	205.1	.09

Multiple Regression Y: 1990 Enroll 10 X variables

Count:	R:	R-squared:	Adj. R-squared:	RMS Residual:
202	.94	.89	.88	89.76

Analysis of Variance Table

Source	DF:	Sum Squares:	Mean Square:	F-test:
REGRESSION	10	11859203.55	1185920.36	147.2
RESIDUAL	191	1538845.07	8056.78	p = .0001
TOTAL	201	13398048.62		

Residual Information Table

SS[e(i)-e(i-1)]:	e ≥ 0:	e < 0:	DW test:
2669861.68	97	105	1.73

Note: 3 cases deleted with missing values.

Beta Coefficient Table

Variable:	Coefficient:	Std. Err.:	Std. Coeff.:	t-Value:	Probability
INTERCEPT	4.01				
Goodlad	103.31	21.13	.19	4.89	.0001
Spar Index	5.98	5.95	.03	1.01	.3162
Gen Supp EXP 89	-.07	.09	-.04	.83	.4095
Adm EXP 89	.1	.07	.08	1.32	.1878
teach EXP 89	.19	.02	.93	9.3	.0001
transp EXP 89	.06	.07	.03	.8	.4255
CVR 11/90	-19.57	8.63	-.08	2.27	.0245
real prop taxes..	-.04	.03	-.31	1.36	.175
State aid 89	.02	.03	.08	.54	.5923
tot revenue 89	-4.14E-3	.03	-.04	.14	.8911

Nonmetropolitan ≥1100 K-12 Districts (n=170) 1990 Enrollment

Indices	R^2	F Test	Probability	T Test	Intercept	Slope
+/-500	.61	269.3	.0001	16.4	-57.1	417.9
Sparsity Index	.08	15.6	.0001	3.9	792.2	-62.7
Expenditures General Support	.52	183.8	.0001	13.5	17.0	2.0
Administration	.67	349.1	.0001	18.7	300.8	1.5
Instruction	.87	1139.3	.0001	33.7	47.8	.2
Transportation	.52	187.2	.0001	13.6	228.5	1.5
Comb Wealth Ratio	.04	8.0	.005	2.8	709.5	-127.1
Revenues Prop & Real Tax	.21	44.7	.0001	6.6	467.5	.1
State Aid	.52	186.3	.0001	13.6	277.3	.1
Total Revenues	.79	646.0	.0001	25.4	72.3	.1

Multiple Regression Y_1 :1990 Enroll 10 X variables

Count:	R:	R-squared:	Adj. R-squared:	RMS Residual:
179	.96	.92	.91	76.59

Analysis of Variance Table

Source	DF:	Sum Squares:	Mean Square:	F-test:
REGRESSION	10	10272780.22	1027278.02	175.11
RESIDUAL	161	944476.68	5866.31	p = .0001
TOTAL	171	11217256.91		

Residual Information Table

SS[e(i)-e(i-1)]:	e ≥ 0:	e < 0:	DW test:
1696108.47	81	91	1.79

Beta Coefficient Table

Variable	Coefficient:	Std. Err.:	Std. Coeff.:	t-Value:	Probability:
INTERCEPT	-29.55				
Goodlad	77.64	19.24	.15	4.03	.0001
Spar Index	2.44	5.73	.01	.43	.6706
Own Supp EXP 89	.25	.11	.08	2.27	.0244
Adm EXP 89	.2	.09	.11	2.24	.0267
teach EXP 89	.18	.02	.69	8.7	.0001
transp EXP 89	-.02	.09	-.01	.2	.8427
CVR 11/90	-.27	19.31	-.05	1.4	.164
real prop taxes	-.06	.04	-.24	1.39	.1661
State aid 89	-.03	.04	-.13	6	.5518
tot revenue 89	.03	.04	.24	.87	.3842

Appendix 2a

All ≥1100 k-12 Districts (n=205) 1990 Regent Diplomas as %

Indices	R^2	F Test	Probability	T Test	Intercept	Slope
1990 Enrollment	E	.9	.35	.9	34.7	E
% Free Lunch	.02	2.9	.08	1.7	41.2	-.1
Teacher Turnover	E	.3	.56	.5	34.5	.8
Comb. Wealth Ratio	.01	2.6	.10	1.6	35.4	1.9
Math 2 Enrollment	.03	6.9	.009	2.6	27.7	.1
Math 3 Enrollment	.07	15.4	.0001	3.9	27.0	.2
English Enrollment	.12	27.6	.0001	5.2	23.9	.2
Government Enroll	.21	54.6	.0001	7.3	18.3	.3
Physics Enrollment	.01	2.0	.15	1.4	34.9	.1
1988 Regent Dip %	.15	34.6	.0001	5.8	22.3	.3
1989 Regent Dip %	.10	22.7	.0001	4.7	27.5	.3

Multiple Regression Y: % Reg Dip 90 11 X variables

Count:	R:	R-squared:	Adj. R-squared:	RMS Residual
191	.5	.25	.21	12.18

Analysis of Variance Table

Source	DF:	Sum Squares:	Mean Square:	F-test:
REGRESSION	11	9063.76	823.98	5.55
RESIDUAL	179	26570.67	148.44	p = .0001
TOTAL	190	35634.43		

Residual Information Table

SS[e(i)-e(i-1)]:	e ≥ 0:	e < 0:	DW test:
52008.86	90	101	1.99

Note: 14 cases deleted with missing values.

Beta Coefficient Table

Variable:	Coefficient:	Std. Err.:	Std. Coeff.:	t-Value:	Probability
INTERCEPT	8.46				
1990 Enroll	1.22E-3	4.06E-3	.02	.3	.7639
% free lunch	.06	.11	.05	.58	.5605
Tch turnover 90	-.14	.17	-.06	.84	.4031
CVR 11/90	1.32	1.71	.06	.77	.4407
89 M2 Enrl %	.04	.07	.04	.53	.5951
89 M3 Enrl %	.12	.07	.13	1.74	.0836
89 Eng Enrl	-.02	.07	-.03	.33	.7443
89 Govt Enr %	.22	.08	.3	2.74	.0067
89 Phys Enr %	-.07	.07	-.08	1.08	.2801
88 Regent dip %	.15	.06	.2	2.6	.01
89 Regent dip %	.11	.08	.11	1.42	.1576

Nonmetropolitan ≥1100 k-12 Districts (n=170) 1990 Regent Diploma as %

Indices	R^2	F Test	Probability	T Test	Intercept	Slope
1990 Enrollment	.02	3.5	.06	1.8	32.3	.007
% Free Lunch	.02	4.1	.04	2.0	43.0	-.2
Teach Turnover	E	0.4	.52	.6	38.3	-.1
Comb Wealth Ratio	E	0.08	.77	.2	36.5	.6
Math 2 Enrollment	.09	17.4	.0001	4.1	21.8	.2
Math 3 Enrollment	.08	14.2	.0001	3.8	25.7	.2
English Enrollment	.15	30.0	.0001	5.4	21.8	.2
Government Enroll	.13	26.3	.0001	5.1	22.7	.2
Physics Enrollment	E	0.02	.87	0.1	36.7	.01
1988 Regent Dip %	.12	23.8	.0001	4.8	23.5	.2
1989 Regent Dip %	.08	11.2	.001	3.3	25.2	.2

Multiple Regression Y_1: % Reg Dip 90 11 X variables

Count:	R:	R-squared:	Adj. R-squared:	RMS Residual
168	.54	.3	.25	11.41

Analysis of Variance Table

Source	DF:	Sum Squares:	Mean Square:	F-test:
REGRESSION	11	8542.47	776.59	5.96
RESIDUAL	156	20325.81	130.29	p = .0001
TOTAL	167	28868.28		

Residual Information Table

SS[e(i)-e(i-1)]:	e ≥ 0:	e < 0:	DW test:
44965.84	78	90	2.21

Note: 4 cases deleted with missing values.

Beta Coefficient Table

Variable:	Coefficient:	Std. Err.:	Std. Coeff.:	t-Value:	Probability:
INTERCEPT	6.94				
1990 Enroll	1.87E-3	4.02E-3	.04	.47	.6416
% free lunch	-.08	.11	-.06	.71	.476
Tch turnover 90	.11	.17	.04	.62	.5374
CWR 11/90	-2.52	2.39	-.08	1.05	.2935
89 M2 Enrl %	.15	.07	.15	2.07	.0406
89 M3 Enrl %	.06	.06	.07	.93	.3556
89 Eng Enrl	.22	.08	.31	2.64	.009
89 Govt Enr %	-.01	.08	-.01	.11	.9157
89 Phys Enr %	-.1	.07	-.11	1.51	.1326
88 Regent dip %	.16	.06	.2	2.56	.0114
89 Regent dip %	.13	.08	.13	1.66	.0994

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New York's Rural Counties and Nonmetropolitan District Demographics

County	90 Popul (in 000)	Popul Density	k-12, 1990 Approxim.	total k-12 Districts	Ebert "Urbanness".	≥1100 k-12 Districts
Alleghany	50.4	48.8	10,000	16	Limited	14
Cattaragus	84.2	64.4	18,500	14	Considerable	6
Cayuga	82.3	118.4	13,000	7	Extensive	1
Chautagua	141.2	133.2	26,900	19	Considerable	10
Chemung	95.1	231.3	15,200	3	Considerable	0
Chenango	51.7	57.6	11,000	9	Limited	5
Clinton	85.9	82.3	13,500	8	Considerable	2
Columbia	62.9	90.5	10,000	6	Modewrate	2
Cortland	48.9	97.8	8,500	5	Considerable	3
Delaware	47.2	32.7	8,200	12	Limited	8
Essex	37.1	20.5	5,400	11	Limited	10
Franklin	46.5	28.3	9,600	7	Limited	4
Fulton	54.1	108.8	10,500	7	Extensive	3
Genesee	60.0	121.2	11,200	8	Extensive	2
Greene	44.7	68.9	7,200	6	Moderate	2
Hamilton	5.2	3.0	768	4	Moderate	4
Herkimer	65.7	46.3	13,200	11	Moderate	4
Jefferson	110.9	79.2	19,700	11	Considerable	5
Lewis	26.7	20.8	5,800	5	Limited	2
Livingston	62.3	98.4	10,300	8	Moderate	5
Madison	69.1	105.3	3,000	10	Extensive	5
Montgomery	51.9	128.3	8,700	5	Extensive	3
Ontario	95.1	147.6	17,300	9	Extensive	3
Orleans	41.8	106.9	8,700	5	Moderate	2
Ostego	60.5	60.2	10,400	12	Considerable	6
Oswego	121.9	127.8	26,800	9	Extensive	0
Putnam	77.1*	333.0*	13,400	6	Extensive	2
Rensselaer	154.4	235.7	23,700	12	Extensive	2
Saratoga	181.2	223.7	32,200	12	Extensive	1
Schenectady	149.2	724.2	20,700	6	Extensive	1
Schoharie	31.8	50.9	6,100	7	Moderate	5
Schuyler	18.6	56.6	2,900	2	Moderate	0
Seneca	33.6	102.7	5,600	5	Moderate	2
St. Lawrence	111.9	41.0	21,200	17	Considerable	9
Steuben	99.0	70.9	21,000	16	Considerable	10
Sullivan	69.2	70.9	11,600	10	Limited	6
Tioga	52.3	100.7	10,700	6	Moderate	1
Tompkins	94.0	197.0	13,400	6	Considerable	1
Ulster	165.3	146.1	25,000	9	Considerable	0
Warren	59.2	67.1	11,000	9	Considerable	6
Washington	59.3	70.9	11,700	11	Moderate	6
Wayne	89.1	147.2	18,400	11	Extensive	1
Wyoming	42.5	71.4	6,000	5	Moderate	1
Yates	22.8	67.2	3,100	2	Moderate	1

* Putnam is 1980 census